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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,674	07/13/2001	Gerhard Tebbe	4452-398	5179

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EXAMINER

JONES, JUDSON

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 08/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/904,674

Applicant(s)

TEBBE, GERHARD

Examiner

Judson H Jones

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7-13 and 16-21 is/are rejected.
- 7) ☒ Claim(s) 2,6,11,14 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 29 January 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Applicant's arguments filed 1/29/2003 have been fully considered but they are not persuasive. The argument that Masberg et al., Weimer et al. and Lorenz et al. are not from the same field of endeavor as the claimed invention is not persuasive. While it is true that Masberg et al. and Weimer et al. are primarily related to reducing on-going rotational irregularities in a drive train while the claimed invention is related to rotational irregularities in a drive train that occur during a change in torque, both types of irregularities are treated in the same way. Also in Weimer et al. column 3 lines 24-27 it states, " ... the electric machine may be used at higher speeds in an attempt to counter vibrational excitations which would excessively impair the driving comfort or the driving behavior of a vehicle using all available means." That sentence does not limit the Weimer et al. device to on-going irregularities. In regard to Lorenz et al., Lorenz et al. relates to a system that controls torque during transmission shift control (see column 2 line 29) and acceleration (see column 2 lines 36). In the specification on page 2 Applicant mentions acceleration in line 11 and shifting gears in line 20. While the device of Lorenz et al. is not identical to the claimed invention, Lorenz et al. is in the same field of endeavor as the claimed invention in the view of the examiner.

Drawings

In regard to the objections to the drawings, changes to the drawings have addressed the issues of showing the logic device of claim 3 and the data carrier of claim 20. Those objections to the drawings are withdrawn. The brake of claim 6 is discussed in the specification on page 5 lines 4-6, where the rapidly rotating mass is described as storing the braking energy. The electric motor shown connected to the flywheel in figure

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2a can act as a braking means. Since the rotating mass and motor are shown in the drawings, the objection to the drawings for not showing the brake of claim 6 is withdrawn.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3-5, 7-10, 12, 13 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weimer et al. 6,373,205 B1 (of record) in view of Lorenz et al. 6,336,070 B1 (of record) and Muramatsu et al. 6,254,069 B1. Weimer et al. discloses a device for damping torque pulsations for a drive unit including an engine, a transmission, a differential and drive wheels by detecting a change in available torque as described in column 5 lines 26-41. In regard to determining the period of the load cycle oscillation, Weimer et al. states, "The deflection mass builds up an oscillation which is in opposite phase to and which opposes the exciting vibration." in column 6 lines 59-61. Weimer et al. also states in "The tuning or adapting of the deflection mass arrangement to determined frequencies or orders of frequencies to be damped is carried out ..." Both passages imply that the load cycle oscillation is determined. Lorenz et al. teaches in column 6 lines 2-6 "processing the estimated engine torque output and the crankangle convergence data through a filter model in the observer to develop the estimated alternating polarity ripple torque component." Since Lorenz et al. and Weimer et al. are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have determined the period of load oscillation in order to better reduce said oscillation. In regard to the torque pulse in counter-

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opposition to the load cycle oscillation having a duration that is about half the period of the load cycle oscillation, this is taught in Muramatsu et al. column 7 lines 13-35. Since Muramatsu et al. and Weimer et al. as modified by Lorenz et al. are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized a torque pulse in counter-opposition to the load oscillation having a duty cycle of about half the period of the load cycle oscillation for the purpose of reducing the adverse effect or influence due to the higher harmonics of the drive pulse signal and to permit the pulse cycle to have a sinusoidal waveform, leading to improved active damping.

In regard to claims 3, 7 and 8, see Weimer et al. column 5 line 66 to column 6 line 15.

In regard to claims 4 and 17, see Weimer et al. column 5 lines 35-38.

In regard to claim 5, see Lorenz et al. column 2 line 64 to column 3 line 12.

In regard to claims 9, 10 and 18, see Weimer et al. column 10 lines 2-49. See also Applicant's specification page 5 lines 10-15 for an explanation as to how a two-mass flywheel is used to apply a torque pulse to a primary or secondary part of an engine.

In regard to claims 12 and 13, see Weimer et al. column 5 line 66 to column 6 line 4. When a vehicle changes gears, the motor is disengaged from the drive train in at least some transmission systems, which is an irregularity during operation of the drive system. Also a rise in available torque is an irregularity in the drive system. The Weimer et al. device detects those irregularities.

In regard to claim 20, see Lorenz et al. column 2 lines 4-17.

Allowable Subject Matter

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Claims 2, 6, 11, 14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose or teach detecting the magnitude of the available torque and producing a torque pulse having a magnitude about half the magnitude of the available torque as recited in claim 2. The prior art of record does not disclose or teach a method for reducing oscillations comprising detecting a change in an available torque, determining the period of a load oscillation due to the change and applying a torque pulse in phase opposition to oscillation where the torque pulse is applied by a rotating mass via a brake as recited in claim 6. Bonfilio teaches a rotating mass in a flywheel that applies a torque pulse by friction means (i.e., a brake) in column 4 lines 8-62. Weimer et al. discloses a mass in a flywheel in column 10 lines 10-49, but that mass does not apply a torque pulse via a brake. No reason has been found for replacing the flywheel mechanism of Weimer et al. with the flywheel mechanism of Bonfilio. The prior art of record does not disclose or teach applying a first pulse with a negative value and applying a second pulse with a positive value to counteract oscillations of the drive train of a motor vehicle as recited in claim 11. The prior art of record does not disclose or teach applying a first pulse and a second pulse commencing one period later than the first pulse as recited in claim 14. The prior art of record does not disclose or teach first, second and third pulses applied to counteract oscillations in the drive train of a motor vehicle with the second pulse being directed opposite to the first and third pulses as recited in claim 15.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judson H Jones whose telephone number is 703-308-0115. The examiner can normally be reached on 8-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1371. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JHJ 8/15/2003



BURTON S. MULLINS
PRIMARY EXAMINER